

REMARKS

Drawings

The drawings are objected to for failing to show the power amplifier recited in the claims. Applicant submits herewith a proposed new Fig. 10 showing the claimed power amplifier. Applicant requests the Examiner's approval of the proposed new drawing. No new matter is added.

Specification

The specification is amended to correct typographical errors and for conformance with proposed new drawing Fig. 10.

Claims

Claim 5 is amended to correct a drafting error.

Claim Rejections - 35 USC §102

Claims 2-5, 22-23 and 25-29 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,906,836 to Yamashita, et al. ("Yamashita"). Applicant traverses this rejection.

re - Claim 2 is amended to recite that the log amps are progressive compression log amps. (See article entitled *Monolithic Logarithmic Amplifiers* submitted herewith under an IDS.)

[Yamashita only discloses log amps that are operational amplifiers configured with feedback diodes for logarithmic operation.] (1)

re - Claim 4 is amended to recite that the differencing circuit consists essentially of a summing node. In contrast, Yamashita discloses an entire operational amplifier (op amp) circuit configured as a differential amplifier rather than a simple summing node.

re - Claim 22 is amended to recite that logarithmically amplifying comprises progressively compressing. Yamashita does not disclose log amps that operate through progressive compression. Instead, Yamashita only discloses log amps that are operational amplifiers configured for logarithmic operation.

Claim 25 recites utilizing a signal to be examined as the first input signal, and utilizing a reference signal as the second input signal. The Examiner alleges that these limitations are disclosed by the signals applied to the negative inputs to LOG1 and LOG2 in Fig. 1 of Yamashita, but Yamashita does not disclose the use of a reference signal as either of these input signals.

Claim 26 recites that the reference signal has the same waveform as the signal to be examined. The Examiner alleges that claim 26 is anticipated by Yamashita, but does not identify any input signals that have the same waveform.

Claim 27 recites utilizing a modulated signal for the first input signal, and utilizing a modulation signal for the second input signal. Yamashita does not disclose any modulated or modulation signals. The Examiner alleges that the modulated signal limitation is satisfied by the feedback current I_{f1} of LOG 1 in combination with an input current at the negative input of LOG 1. (Presumably the Examiner is referring to the feedback current I_{f1} rather than the saturation current I_{S1} which is a fixed parameter of the diode D_1 .) However, the feedback current I_{f1} cannot be considered part of an input signal to the first log amp. By its very definition, a feedback signal is not an input signal.

It should be noted that the element identified as LOG 1 is not a log amp by itself. LOG 1 is an operational amplifier that achieves logarithmic operation through the use of a diode junction in the feedback path. (See article entitled *Monolithic Logarithmic Amplifiers* submitted herewith under an IDS.) Thus, the feedback path is an integral part of the log amp formed from op amp LOG 1 and diode D_1 , so the current flowing through the feedback path cannot be considered part of the input signal to *the log amp*. A similar argument applies to the Examiner's allegation regarding the feedback current I_{f2} to LOG 2.

Claim 28 recites a power amplifier coupled to the first and second log amps. The Examiner alleges that AMP 3 of Yamashita is a power amplifier. However, AMP 3 is an operational amplifier, not a power amplifier. (See col. 3, line 50 of Yamashita.)

Claim 29 is amended to clarify that the log amps have current-mode outputs. The output signals e1 and e2 of Yamashita are classic voltage-mode signals output by op amps LOG 1 and LOG 2.

Therefore, claims 2-5, 22-23 and 25-29 are not anticipated by Yamashita.

Claims 14-15 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,568,978 to Cosh ("Cosh"). Applicant traverses this rejection.

Claims 14 and 15 are amended to recite that clarify that the log amps are coupled to separate inputs of the differencing circuit rather than being coupled through other log amps as shown in Cosh. Therefore, claims 14 and 15 are not anticipated by Cosh.

Claim Rejections - 35 USC §103

Claims 10-12, 19 and 20 are rejected under 35 USC §103(a) as being unpatentable over Yamashita. Applicant traverses this rejection.

Claim 10 is amended to recite that the log amps are progressive compression log amps. Claim 19 is amended to recite two or more progressive compression log amps. Yamashita does not disclose or suggest progressive compression log amps. Yamashita only discloses log amps that are operational amplifiers configured with feedback diodes for logarithmic operation. Therefore, a *prima facie* case of obviousness has not been established for claims 10 or 19.

Claim 11, which has been rewritten in independent form, recites that the first and second log amps are arranged symmetrically about a center line. The Examiner alleges that this feature would have been obvious because it was within the knowledge of one skilled in the art. However, the Examiner has provided no support for this assertion, and no teaching or suggestion of this feature can be found in the cited references. Therefore, a *prima facie* case of obviousness has not been established for claim 11.

Allowable Subject Matter

Claims 6-9, 16-18 and 24 are allowed.

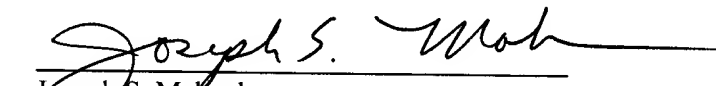
Claims 13 and 21 are objected to as being dependent upon a rejected base claim but has been rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 13 and 21 have been rewritten as suggested.

CONCLUSION

Applicant requests reconsideration in view of the foregoing amendments and remarks. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

MARGER JOHNSON & McCOLLOM, P.C.



Joseph S. Makuch
Reg. No. 39,286

MARGER JOHNSON & McCOLLOM
1030 SW Morrison Street
Portland, OR 97205
(503) 222-3613